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10/669,290	09/24/2003	Timothy J. Shuttleworth	11336/230 (P02069US)	6575

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EXAMINER	
LAO, LUN S	

ART UNIT	PAPER NUMBER
2615	

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08/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/669,290

Applicant(s)

SHUTTLEWORTH ET AL.

Examiner

Lun-See Lao

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-33 is/are allowed.
- 6) ☒ Claim(s) 34-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09-02-2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This action is in response to the election filed on 05-18-2007. Applicant elects, without traverse, claims 1-46. Claims 47-65 are cancelled without prejudice. Claims 1-46 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 34, 36 and 40-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Hein (US PAT. 6,805,633).

Consider claim 34 Hein teaches that a method of compensating for noise in a listening area, comprising:

receiving an audio input signal (see fig.9 (left and right channel signal));

scaling (902,922,942))the audio input signal according to an adjustment signal to generate an audio output signal; receiving an ambient sound input signal;

calculating (960,962) a set of audio output levels, where each audio output level from the set of audio output levels is indicative of the audio input signal in a corresponding frequency band from a set of frequency bands;

calculating (930) a set of ambient sound levels, where each ambient sound level from the set of ambient sound levels is derived from the ambient sound input signal in a corresponding frequency band from the set of frequency bands;

comparing (930) the set of audio output levels and the set of ambient sound levels; and generating the adjustment signal in response to the comparing (see col. 8 line 51-col. 9 line 67).

Consider claim 36 Hein teaches that the comparing includes subtracting the set of audio output levels from the set of ambient sound levels (see figs 4.,9 and col. 8 line 36-65).

Consider claim 40 Hein teaches that storing listening-area characteristics; and where the calculating a set of ambient sound levels is performed in response to the stored listening area characteristics(see fig.1 (a) and coll. 3 line 54-col. 4 line 67).

Consider claims 41-42 Hein teaches a memory (see fig.1 (a) 115) capable of storing listening-area characteristics; where the area sound processor is further configured to derive the set of ambient sound levels from the ambient sound input signal in response to the stored listening-area characteristics (see col. 3 line 54-col. 4 line 67); and the listening-area characteristics include: information regarding a substantially constant-level background noise in the listening area, and information regarding an acoustic response of the listening-area (see col. 3 line 40-col. 4 line 67).

Consider claims 43-46 Hein teaches that integrating the ambient sound levels over a time constant of approximately 30 seconds (reads on 10 second and see col. 7 line 5-49); and the generating the adjustment signal is performed with independent weights assigned to each of the frequency bands in the set of frequency bands (see fig. 9 and see col. 7 line 49-col. 8 line 67) and limiting values of the adjustment signal in response to a max boost setting (see col. 11 line 5-21); and the generating the adjustment signal is performed in response to a sensitivity setting(see fig. 9 and see col. 7 line 49-col. 8 line 67).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hein (US PAT. 6,805,633) in view of Op de Beek (US PAT. 4,845,758).

Consider claim 35 Hein does not explicitly teach that the calculating the set of audio output levels includes calculating logarithmic indicators of audio output in the set of frequency bands; and the calculating a set of ambient sound levels includes calculating logarithmic indicators of ambient sound in the set of frequency bands.

However Beek teaches that that the calculating the set of audio output levels includes calculating logarithmic indicators of audio output in the set of frequency bands; and the

calculating a set of ambient sound levels includes calculating logarithmic indicators of ambient sound in the set of frequency bands (see figs 2a-2b and col. 5 line 54-col. 6 line 15).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to combine the teaching of Beek into Hein so that an audio system as taught by Hein and Martin could have accurately calculated the frequency bank to enhance the output signal.

6. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hein (US PAT. 6,805,633) as modified by Martin (US PAT. 4,845,758) as applied to claims 1 and 34 above and further in view of Brennan (US PAT. 7,171,010).

Consider claim 37 Hein does not clearly teach that the set of frequency bands has eight frequency bands and the set of frequency bands includes: a first frequency band from about 100 Hz to about 145 Hz; a second frequency band from about 145 Hz to about 211 Hz; a third frequency band from about 211 Hz to about 307 Hz; a fourth frequency band from about 307 Hz to about 447Hz; a fifth frequency band from about 447 Hz to about 650 Hz; a sixth frequency band from about 650 Hz to about 944 Hz; a seventh frequency band from about 944 Hz to about 1372 Hz; and an eighth frequency band and from about 1372 Hz to about 2000 Hz.

However, Brennan teaches that the set of frequency bands has eight frequency bands (see fig.1 and col. 4 line 25-67) and the set of frequency bands includes: a first frequency band from about 100 Hz to about 145 Hz; a second frequency band from

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about 145 Hz to about 211 Hz; a third frequency band from about 211 Hz to about 307 Hz; a fourth frequency band from about 307 Hz to about 447Hz; a fifth frequency band from about 447 Hz to about 650 Hz; a sixth frequency band from about 650 Hz to about 944 Hz; a seventh frequency band from about 944 Hz to about 1372 Hz; and an eighth frequency band and from about 1372 Hz to about 2000 Hz (see figs. 1, 2c, 2d and col. 13 line 18-col. 14 line 67).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to combine the teaching of Brennan into Hein so that a gaming machine system as taught by Hein could have accurately analyzed the frequency bank to reduce the noise signal.

Consider claims 38-39 Brennan teaches that the set of frequency bands includes substantially nonoverlapping frequency bands (see figs. 2a, 2b and col. 14 line 49-col. 15 line 63); and the set of frequency bands includes partially overlapping frequency bands (see figs. 2c, 2d and col. 14 line 49-col. 15 line 63); and the set of frequency bands altogether span a continuous frequency range including from about 100 Hz to about 2000 Hz (see figs. 2a-2d and col. 14 line 49-col. 15 line 63); and the set of frequency bands altogether span non-contiguous portions of the frequency range from about 100 Hz to about 2000 Hz(see figs. 2c,2d and col. 14 line 49-col. 15 line 63 and see the discussion above claim 7).

Allowable Subject Matter

7. Claims 1-33 are allowed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dougherty (US PAT. 5,907,622) and Martin (US PAT. 7,171,010) are cited to show other related AMBIENT NOISE SOUND LEVEL COMPENSATION.

9. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:
(571) 273-8300

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao, Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding

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should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao, Lun-See L.S.
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501
Date 07-26-2007



VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600